

CE 890 Graduate Seminar

SPEAKER: Scott Sutherland (Dr. Dissanayake's MS Distance Learning Grad Student)

TOPIC: "K-18 Manhattan, KS"

DATE: October 21, 2009

TIME: 4:00 p.m. (refreshments at 3:45 p.m.)

PLACE: 2144 Fiedler Hall

ABSTRACT

The future K-18 highway design project is based between the cities of Manhattan and Ogden. The existing highway is to be replaced with a new alignment and freeway with vehicle access control ramps. This presentation will provide a brief project overview discussing the new alignment, retaining wall details, and drainage issues.

The steep terrain around the Miller Pky/K-18 intersection created unique culvert erosion problems. Some of the cross road pipe structures are at slopes of 10 percent, which induced high outlet velocities. A solution to the problem was the development of Type-4 Impact basins found in the Hydraulic Engineering Circular Manuals to slow the pipe exit velocities down.

Other drainage problems included culvert head water levels, which posed a risk of flooding residential structures during a 100 year storm event. A solution to this problem was to use a drop tapered inlet from the KDOT Drainage Design Manual to increase the hydraulic efficiency of the inlet structure.